

## **NM 3.2      Network Management Functional Requirements**

This section describes general requirements for NM and systems management capabilities to be used by GCCS IAW MIL-STD-2045-38000 (Network Management for DoD Communications), MIL-HDBK-1351 (Network Management for DoD Communications), and FIPS Publication 179-1 (Government Network Management Profile (GNMP)). There are six primary classifications of requirements:

- Management Architecture
- Management Components
- Management Applications
- Management System Characteristics
- Security for Management Operations
- Coexistence of OSI-Based and IPS-Based NM Technologies

The following are general NM requirements for the DII COE.

NM.GEN.3.2.1 NM shall be provided.

Traceability:  
Priority ???

NM.GEN.3.2.2 NM and system management for the DII COE community shall be interoperable with the goals and structure of the DII.

Traceability:  
Priority ???

### **NM 3.2.1      Management Architecture**

NM.ARCH.3.2.1.1 Industry standard, object-oriented, distributed systems architectures (as identified in current and future OMNIPoint specifications) shall be used to support installation and interoperability of distributed DII NM applications.

Traceability:  
Priority ???

NM.ARCH.3.2.1.2 The three types of logical management components or services (i.e., managed systems, manager systems, and management gateways) shall support the following Systems Management Functional Areas (SMFAs): configuration management, fault management, performance management, accounting management, and security management.

Traceability:  
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NM.ARCH.3.2.1.3 Multiple managers, multiple managed systems, and multiple management gateways shall be integrated so as to allow common observation and control of the composite of completely dissimilar logical and physical resources/services.

Traceability:  
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NM.ARCH.3.2.1.4 NM systems may be capable of supporting two types of management information pools: (1) databases (both integrated and non-integrated) and (2) Management Information Bases (MIBs). As a minimum, MIBs shall be supported.

Traceability:  
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NM.ARCH.3.2.1.5 Management system components/services shall have a common understanding of management information databases and MIBs, access characteristics, and the structure of managed objects.

Traceability:  
Priority ???

NM.ARCH.3.2.1.6 The management information that can be shared among managed systems, manager systems, and management gateways within a domain, as well as the types of management information that is to be made available to other management domains, shall include at least the following for remote monitoring:

- etherStatsCollisions (the best estimate of the total number of collisions of a given Ethernet segment)

Traceability:  
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- etherHistoryDropEvents (the total number of events in which packets were dropped by the probe due to lack of resources during a given interval (not necessarily the number of packets dropped, but the number of occurrences))

Traceability:  
Priority ???

- etherHistoryUtilization (the best estimate of the mean physical layer network utilization of a given interface during a given interval (in hundredths of a percent))

Traceability:  
Priority ???

- alarmRisingThreshold (a threshold for a given sampled statistic (when the current sampled value is greater than or equal to a specified threshold, and the value of the last sampling interval was less than a specified threshold, a single event shall be generated))

Traceability:  
Priority ???

- hostTopNControlTable (a list of top N host control entries)

Traceability:  
Priority ???

NM.ARCH.3.2.1.7 The management information that can be shared among managed systems, manager systems, and management gateways within a domain, as well as the types of management information that is to be made available to other management domains, shall include at least the following for host resources:

- hrSystemUptime (the amount of time since a given host was last initialized)

Traceability:  
Priority ???

- hrSystemNumUsers (the number of user sessions for which a given host is storing system information)

Traceability:  
Priority ???

- hrSystemProcesses (the number of process contexts currently loaded or running on the system)

Traceability:  
Priority ???

- hrMemorySize (the amount of physical main memory contained by a given host)

Traceability:  
Priority ???

- hrStorageSize (the size of storage represented by a given entry)  
Traceability:  
Priority ???
- hrDeviceStatus (the current operational state of a given device)  
Traceability:  
Priority ???

NM.ARCH.3.2.1.8 The management information that can be shared among managed systems, manager systems, and management gateways within a domain, as well as the types of management information that is to be made available to other management domains, shall include at least the following for other resources:

- processTable (table describing currently running processes on the node in which a given SNMP agent resides)  
Traceability:  
Priority ???
- processMEM (the percentage of real memory used by a given process (0-100))  
Traceability:  
Priority ???
- processTime (the accumulated CPU time for a given process (in seconds))  
Traceability:  
Priority ???
- errorTable (errors reported to the system console)  
Traceability:  
Priority ???
- devCapacity (the percentage of a device's total capacity in use)  
Traceability:  
Priority ???

NM.ARCH.3.2.1.9 The management information that can be shared among managed systems, manager systems, and management gateways within a domain, as well as the types of management information that is to be made available to other management domains, shall include at least the following for database resources:

- oraLogFile (log file messages)  
Traceability:  
Priority ???
- oraUtilThreshold (percentage for acceptable space utilization)  
Traceability:  
Priority ???
- oraBubblesThreshold (percentage for acceptable number of wasted extents by bubbles)  
Traceability:  
Priority ???
- oraHcombThreshold (percentage for acceptable number of wasted extents by honeycomb)  
Traceability:  
Priority ???
- oraHotDiskIoThreshold (high threshold for UNIX I/O traffic (read + write) per second)

Traceability:  
Priority ???

- oraTableThreshold (high threshold expressed in percentage (used extents / max extents)

Traceability:  
Priority ???

NM.ARCH.3.2.1.10 Management information identified in the management and security policies in effect at any given instant shall be able to be accessed by, shared among, and/or modified by appropriate distributed management components/services.

Traceability:  
Priority ???

NM.ARCH.3.2.1.11 Overall management responsibility in a domain shall be assigned to a logical Network Control Center (NCC). An NCC shall coordinate NM functions within its domain of jurisdiction and between its domain and other domains. Accordingly, an NCC shall have appropriate managed system, manager system, and management gateway capabilities to allow it to interact with, and pass appropriate management information and commands among, NM components/services in its own and other domains.

Traceability:  
Priority ???

NM.ARCH.3.2.1.12 Allocations and reallocations of resources to domains, as well as managers to domains, shall be capable of being made dynamically according to a variety of factors (including at least the following: ownership, mission, mission function, organization, geography, administration, accounting, technology, equipment or resource or resource service type being managed, performance requirements, management policy, and security policy).

Traceability:  
Priority ???

NM.ARCH.3.2.1.13 Domains shall be capable of being partitioned into multiple subordinate domains, each of which may have its own manager. Accordingly, each management domain shall be able to accommodate more than one manager system managing resources within the domain. Overall management responsibility in a domain shall be capable of being assigned to a logical NCC.

Traceability:  
Priority ???

NM.ARCH.3.2.1.14 An NCC shall be able to provide the following types of management information to other NCCs, managers, and/or management gateways:

- summary management information and/or significant summary event reports to other NCCs

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Priority ???

- detailed management information and/or significant summary event reports about its own domain to other NCCs, or to managers and/or management gateways within its domain of jurisdiction

Traceability:  
Priority ???

- management policy and security policy information from hierarchically, higher-level NCCs to neighboring (peer) NCCs, to NCCs of any hierarchically, lower-level management domain, and to managers or management gateways within its domain of jurisdiction.

Traceability:  
Priority ???

NM.ARCH.3.2.1.15 Any NCC or any other manager system shall be able to serve as the hot backup for any other NCC by appropriate back-up, recovery, and/or shadowing principles. A scheme or sequence of hot backups shall be put in place for extremely critical NCCs or for specific, extremely critical, NCC functionality.

Traceability:  
Priority ???

NM.ARCH.3.2.1.16 To support survivability requirements, and/or to support potential new management policies arising out of specific situations, such as during war time or during joint exercises, it shall be possible, subject to any operational and/or security policies, for an NCC in one domain to "cut through", monitor, and directly control another domain. This cut through would be done without any intervening managers or NCCs, specific resources in its own domain, or specific resources in other domains.

Traceability:  
Priority ???

NM.ARCH.3.2.1.17 To the maximum extent possible, an NCC shall use OSI specified systems management protocols, functions, services, and information.

Traceability:  
Priority ???

## **NM 3.2.2 Management Components**

## **NM 3.2.3 Management Applications**

## **NM 3.2.4 Management System Characteristics**

## **NM 3.2.5 Security for Management Operations**

## **NM 3.2.6 Coexistence of OSI-Based and IPS-Based NM Technologies**

## **NM 3.2.7 Requirements Submitted by the Army**

### **NM 3.2.7.1 Monitor Presentation Layer.**

NM 3.2.7.1.1 Network Services shall provide the capability to control communicationss presentation layer:

- Presentation Protocol Kernel Functional Unit

Traceability: ARMY, 20 July 1996  
Priority ???

- Presentation Service that supports at least three(3) Presentation Contexts

Traceability: ARMY, 20 July 1996  
Priority ???

- The capability to bypass the Presentation protocol kernel functional unit for interoperability with QIP systems including the adherence to security controls.

Traceability: ARMY, 20 July 1996  
Priority ???